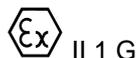


UK Type Examination Certificate CML 21UKEX2977X Issue 0**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1
- 2 Equipment **SN-type proximity sensors Type NJ... and SJ...**
- 3 Manufacturer **Pepperl+Fuchs SE**
- 4 Address **Lilienthalstrasse 200
68307 Mannheim
Germany**
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012
- 10 The equipment shall be marked with the following:



II 1 G

Ex ia IIC T6...T1 Ga



II 2 G

Ex ia IIC T6...T1 Gb



II 1 D

Ex ia IIIC T₂₀₀ 135°C Da

I M2

Ex ia I Mb



CML 21UKEX2977X
Issue 0

11 Description

The SN-type proximity sensors are used to convert mechanical displacements into an electrical signal.

The sensors are supplied from an intrinsically safe circuit and they are suitable to be used in hazardous areas of group I, II and group III.

The area classification of the SN-type proximity sensors depends on the level of protection of the intrinsically safe circuits the sensors are connected to.

Electrical data

Evaluation and supply circuit

Only for connection to a certified intrinsically safe circuit

resp. Ex ia IIC/IIB for EPLGa
 resp. Ex ia IIIC for EPL Da
 resp. Ex ia IIC/IIB or Ex ib IIC/IIB for EPL Gb
 resp. Ex ia IIIC or Ex ib IIIC for EPL Db

Maximum values:

| | Type 1 | Type 2 | Type 3 | Type 4 |
|-------|--------|--------|--------|--------|
| U_i | 16 V | 16 V | 16 V | 16 V |
| I_i | 25 mA | 25 mA | 52 mA | 76 mA |
| P_i | 34 mW | 64 mW | 169 mW | 242 mW |

Table 1

For relationship between type of the connected circuit, maximum permissible ambient temperature for group II (EPL Ga/Gb), group III (EPL Da) resp. group I (EPL Mb) equipment and temperature class as well as the effective internal reactances for the individual types of slot-type proximity sensors, reference is made to the following tables:



CML 21UKEX2977X
Issue 0

Table 2: Application as Group I equipment, EPL Mb:

| type | Ci [nF] | Li [μH] | type 1 | type 2 | type 3 | type 4 |
|---|------------|------------|--------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|
| | | | Ui = 16V li = 25 mA Pi = 34 mW | Ui = 16V li = 25 mA Pi = 64 mW | Ui = 16V li = 52 mA Pi = 169 mW | Ui = 16V li = 76 mA Pi = 242 mW |
| maximum permissible ambient temperature in °C | | | | | | |
| | | | T | T | T | T |
| NJ2-11-SN... | 50 | 150 | 100 | 100 | 89 | 74 |
| NJ2-11-SN-G... | 50 | 150 | 100 | 100 | 81 | 63 |
| NJ2-12GK-SN... | 50 | 150 | 100 | 100 | 80 | 61 |
| NJ3-18GK-S1N... | 70 | 200 | 100 | 100 | 80 | 61 |
| NJ4-12GK-SN... | 70 | 150 | 100 | 100 | 80 | 61 |
| NJ5-18GK-SN... | 120 | 200 | 100 | 100 | 80 | 61 |
| NJ5-30GK-S1N... | 100 | 200 | 100 | 100 | 80 | 61 |
| NJ6-22-SN... | 110 | 150 | 100 | 100 | 80 | 61 |
| NJ6-22-SN-G... | 110 | 150 | 100 | 100 | 81 | 63 |
| NJ6S1+U...+N... | 180 | 150 | 100 | 100 | 80 | 61 |
| NJ8-18GK-SN... | 120 | 200 | 100 | 100 | 80 | 61 |
| NJ10-30GK-SN... | 120 | 150 | 100 | 100 | 80 | 61 |
| NJ15-30GK-SN... | 120 | 180 | 100 | 100 | 80 | 61 |
| NJ15S+U...+N... | 180 | 150 | 100 | 100 | 89 | 74 |
| NJ20S+U...+N... | 200 | 150 | 100 | 100 | 89 | 74 |
| NJ40-FP-SN... | 370 | 300 | 100 | 100 | 89 | 74 |
| SJ2-SN... | 30 | 100 | 100 | 100 | 78 | 57 |
| SJ2-S1N... | 60 | 100 | 100 | 100 | 78 | 57 |
| SJ3,5-S1N... | 30 | 100 | 100 | 100 | 89 | 74 |
| SJ3,5-SN... | 30 | 100 | 100 | 100 | 89 | 74 |

The dots in the labelling represent free definable parameters. These free definable parameters can be omitted or replaced by letters or digits.

When assigning the actual sensor to the table use the model description which describes the sensor best. Letters and digits describe the different types according to the model description key.

The sum of all capacitances and inductances, including tolerance and a 10 m cable, result to the given values for Ci and Li shown above.



CML 21UKEX2977X
Issue 0

Table 3: Application as Group II equipment, EPL Ga/Gb:

| | | | | type 1 U _i = 16 V I _i = 25 mA P _i = 34 mW | | | type 2 U _i = 16 V I _i = 25 mA P _i = 64 mW | | | type 3 U _i = 16 V I _i = 52 mA P _i = 169 mW | | | type 4 U _i = 16 V I _i = 76 mA P _i = 242 mW | | |
|-----------------|-------|---------------------|---------------------|---|----|-------|---|----|-------|--|----|-------|--|----|-------|
| | | | | maximum permissible ambient temperature in °C for application in temperature class | | | | | | | | | | | |
| Type | EPL | C _i / nF | L _i / µH | T6 | T5 | T4-T1 | T6 | T5 | T4-T1 | T6 | T5 | T4-T1 | T6 | T5 | T4-T1 |
| NJ2-11-SN... | Ga/Gb | 50 | 150 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 89 | 30 | 45 | 74 |
| NJ2-11-SN-G... | Ga/Gb | 50 | 150 | 76 | 91 | 100 | 73 | 88 | 100 | 62 | 77 | 81 | 54 | 63 | 63 |
| NJ2-12GK-SN... | Ga/Gb | 50 | 150 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ3-18GK-S1N... | Ga/Gb | 70 | 200 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ4-12GK-SN... | Ga/Gb | 70 | 150 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ5-18GK-SN... | Ga/Gb | 120 | 200 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ5-30GK-S1N... | Ga/Gb | 100 | 200 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ6-22-SN... | Ga/Gb | 110 | 150 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ6-22-SN-G... | Ga/Gb | 110 | 150 | 76 | 91 | 100 | 73 | 88 | 100 | 62 | 77 | 81 | 54 | 63 | 63 |
| NJ6S1+U...+N... | Ga/Gb | 180 | 150 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ8-18GK-SN... | Ga/Gb | 120 | 200 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ10-30GK-SN... | Ga/Gb | 120 | 150 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ15-30GK-SN... | Ga/Gb | 120 | 180 | 73 | 88 | 100 | 69 | 84 | 100 | 51 | 66 | 80 | 39 | 54 | 61 |
| NJ15S+U...+N... | Ga/Gb | 180 | 150 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 89 | 30 | 45 | 74 |
| NJ20S+U...+N... | Ga/Gb | 200 | 150 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 89 | 30 | 45 | 74 |
| NJ40-FP-SN... | Gb | 370 | 300 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 89 | 30 | 45 | 74 |
| SJ2-SN... | Ga/Gb | 30 | 100 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 78 | 30 | 45 | 57 |
| SJ2-S1N... | Ga/Gb | 60 | 100 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 78 | 30 | 45 | 57 |
| SJ3,5-S1N... | Ga/Gb | 30 | 100 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 89 | 30 | 45 | 74 |
| SJ3,5-SN... | Ga/Gb | 30 | 100 | 73 | 88 | 100 | 66 | 81 | 100 | 45 | 60 | 89 | 30 | 45 | 74 |

The dots in the labelling represent free definable parameters. These free definable parameters can be omitted or replaced by letters or digits.

When assigning the actual sensor to the table use the model description which describes the sensor best. Letters and digits describe the different types according to the model description key.

The sum of all capacitances and inductances, including tolerance and a 10 m cable, result to the given values for C_i and L_i shown above.



CML 21UKEX2977X
Issue 0

Table 4: Application as Group III equipment, EPL Da:

| type | Ci | Li | type 1 | type 2 | type 3 | type 4 |
|---|------|------|--------------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|
| | | | Ui = 16V li = 25 mA Pi = 34 mW | Ui = 16V li = 25 mA Pi = 64 mW | Ui = 16V li = 52 mA Pi = 169 mW | Ui = 16V li = 76 mA Pi = 242 mW |
| maximum permissible ambient temperature in °C | | | | | | |
| | [nF] | [µH] | T | T | T | T |
| NJ2-11-SN... | 50 | 150 | 100 | 100 | 71 | not permitted |
| NJ2-11-SN-G... | 50 | 150 | 100 | 100 | 63 | not permitted |
| NJ2-12GK-SN... | 50 | 150 | 100 | 100 | 62 | not permitted |
| NJ3-18GK-S1N... | 70 | 200 | 100 | 100 | 62 | not permitted |
| NJ4-12GK-SN... | 70 | 150 | 100 | 100 | 62 | not permitted |
| NJ5-18GK-SN... | 120 | 200 | 100 | 100 | 62 | not permitted |
| NJ5-30GK-S1N... | 100 | 200 | 100 | 100 | 62 | not permitted |
| NJ6-22-SN... | 110 | 150 | 100 | 100 | 62 | not permitted |
| NJ6-22-SN-G... | 110 | 150 | 100 | 100 | 63 | not permitted |
| NJ6S1+U...+N... | 180 | 150 | 100 | 100 | 62 | not permitted |
| NJ8-18GK-SN... | 120 | 200 | 100 | 100 | 62 | not permitted |
| NJ10-30GK-SN... | 120 | 150 | 100 | 100 | 62 | not permitted |
| NJ15-30GK-SN... | 120 | 180 | 100 | 100 | 62 | not permitted |
| NJ15S+U...+N... | 180 | 150 | 100 | 100 | 71 | not permitted |
| NJ20S+U...+N... | 200 | 150 | 100 | 100 | 71 | not permitted |
| NJ40-FP-SN... | 370 | 300 | 100 | 100 | 71 | not permitted |
| SJ2-SN... | 30 | 100 | 100 | 100 | 59 | not permitted |
| SJ2-S1N... | 60 | 100 | 100 | 100 | 59 | not permitted |
| SJ3,5-S1N... | 30 | 100 | 100 | 100 | 71 | not permitted |
| SJ3,5-SN... | 30 | 100 | 100 | 100 | 71 | not permitted |

The dots in the labelling represent free definable parameters. These free definable parameters can be omitted or replaced by letters or digits.

When assigning the actual sensor to the table use the model description which describes the sensor best. Letters and digits describe the different types according to the model description key.

The sum of all capacitances and inductances, including tolerance and a 10 m cable, result to the given values for Ci and Li shown above.

12 Certificate history and evaluation reports

| Issue | Date | Associated report | Notes |
|-------|-------------|-------------------|---------------------------|
| 0 | 19 Nov 2021 | R14112BE/00 | Prime Certificate issued. |

Note: Drawings that describe the equipment are listed or referred to in the Annex.

13 Conditions of Manufacture

None.



CML 21UKEX2977X
Issue 0

14 Specific Conditions of Use

1. For relationship between type of the connected circuit, maximum permissible ambient temperature and temperature class as well as the effective internal reactances for the individual types of SN- type proximity sensors, reference is made to tables 2 to 4 given in this certificate and in the operating instructions manual.
2. Appropriate measures need to be taken to protect the SN-type proximity sensors against mechanical damage due to impact if they are used within an ambient temperature range between – 60 °C and – 20 °C. An ambient temperature below – 60°C is not permissible.
3. The connection facilities of the SN-type proximity sensors shall be installed as such that a minimum degree of protection of IP20 according IEC 60529 is complied with.
4. Inadmissible electrostatic charge of the plastic enclosures shall be avoided for the application of the following types of SN-type proximity sensors according to the explosion groups and EPL specified in the following Table 5. When the respective types of SN-type proximity sensors are applied in potentially explosive gas atmospheres a corresponding warning note shall be affixed on the SN- type proximity sensors or near the SN-type proximity sensors respectively. When these are applied in potentially explosive gas or dust atmospheres the corresponding notes given in the operating instructions manual shall be considered.

Table 5:

| Type | Group I | Group II (EPL Ga) | Group II (EPL Gb) | Group III |
|---------------------|---------|-------------------|-------------------|-----------|
| NJ2-11-SN... | - | - | - | - |
| NJ2-11-SN-G... | - | - | - | - |
| NJ2-12GK-SN... | - | - | - | - |
| NJ3-18GK-S1N... | - | IIC | - | III |
| NJ4-12GK-SN-Y197959 | - | IIC | - | - |
| NJ4-12GK-SN-Y197960 | - | IIC | - | - |
| NJ4-12GK-SN... | - | - | - | - |
| NJ5-18GK-SN... | - | IIC | - | III |
| NJ5-30GK-S1N... | - | IIC | - | III |
| NJ6-22-SN... | - | IIC | - | III |
| NJ6-22-SN-G... | - | - | - | - |
| NJ6S1+U...+N... | - | IIC | IIC | III |
| NJ8-18GK-SN... | - | IIC | - | - |
| NJ10-30GK-SN... | - | IIC | - | III |
| NJ15-30GK-SN... | - | IIC | - | III |
| NJ15S+U...+N... | - | IIC | IIC | III |
| NJ20S+U...+N... | - | IIC | IIC | III |
| NJ40-FP-SN... | - | not permitted | IIC | III |
| SJ2-SN... | - | - | - | - |
| SJ2-S1N... | - | - | - | - |
| SJ3,5-S1N... | - | - | - | III |
| SJ3,5-SN... | - | - | - | III |



CML 21UKEX2977X
Issue 0

SN-type proximity sensors which are marked (IIC or IIB or IIA or III) in column “Group...” need to be protected against dangerous electrostatic charges.

SN-type proximity sensors which are marked (IIC or IIB or IIA or III) in column “Group ...” need to be protected against dangerous electrostatic charges.

5. For the application of the following SN-type proximity sensors in hazardous areas of group I, II and III appropriate measures need to be taken to protect the free resin surface against mechanical damage if the free resin surface is accessible after installation:

Type

SJ2-SN...
SJ2-S1N...
SJ3,5-S1N...
SJ3,5-SN...

6. Inadmissible electrostatic charge of parts of the metal housing has to be avoided for the following types of SN-type proximity sensors. Dangerous electrostatic charge of parts of the metal housing can be avoided by grounding these parts whereas very small parts of the metal housing (e.g. screws) do not need to be grounded:

Type

NJ2-11-SN-G...
NJ6-22-SN-G...
NJ6S1+U3+N...
NJ6S1+U4+N...
NJ15S+U3+N...
NJ15S+U4+N...
NJ20S+U3+N...
NJ20S+U4+N...
NJ40-FP-SN-P3...
NJ40-FP-SN-P4...

7. The maximum permissible mass fractions of metallic materials are exceeded for the following types of SN-type proximity sensors when applied as EPL Ga-equipment. In hazardous areas requiring the application of EPL Ga-equipment it shall be ensured by appropriate measures that an ignition hazard due to impact or friction effects cannot occur.

Type

NJ6S1+U3+N...
NJ6S1+U4+N...
NJ15S+U3+N...
NJ15S+U4+N...
NJ20S+U3+N...
NJ20S+U4+N...

Certificate Annex

Certificate Number CML 21UKEX2977X
Equipment SN-type proximity sensors Type NJ... and SJ...
Manufacturer Pepperl+Fuchs SE



The following documents describe the equipment defined in this certificate:

Issue 0

For drawings describing the equipment, refer to attached certificate IECEx PTB 11.0092X. In addition to the drawings listed on IECEx PTB 11.0092X, the following drawings include the additional marking required for this UK Type Examination certification:

| Drawing No | Sheets | Rev | Approved date | Title |
|--------------|--------|-----|---------------|--|
| 16-1555CM-10 | 1 to 2 | 0 | 19 Nov 2021 | Additional Marking Requirements for UKCA |